

## Specification Amendments

Page 1, lines 8-15:

### BACKGROUND OF THE INVENTION

~~The present invention describes improvements to the Perlin Noise function. These improvements: (i) improve the appearance of Perlin Noise, greatly reducing artifacts that were present in the original version, and (ii) allow for an efficient implementation at gate-level hardware, thereby facilitating performance improvement by a factor of 1000 over the software implementation now in common use.~~

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### SUMMARY OF THE INVENTION

The present invention describes improvements to the Perlin Noise function. These improvements: (i) improve the appearance of Perlin Noise, greatly reducing artifacts that were present in the original version, and (ii) allow for an efficient implementation at

gate-level hardware, thereby facilitating performance improvement by a factor of 1000 over the software implementation now in common use.

~~The present invention pertains to an apparatus for creating an appearance of texture in a computer image. The apparatus comprises a computer. The apparatus comprises a mechanism for inputting a point  $\{x_d\}$  in  $D$ -dimensional geometric space  $RD$  described via  $D$   $M$ -bit quantities  $i_d$  and  $D$   $N$ -bit quantities  $u_d$ , where  $i_d$  are  $M$ -bit representations of greatest integers not  $> x_d$  and  $u_d$  are  $N$ -bit representations of remainders  $(x_d - i_d)$ , where  $M$  and  $N$  are integers  $\geq 4$ , in the computer. The apparatus comprises a mechanism for computing a pseudo-random hash value at each vertex of a unit cube  $C$  surrounding the point. The apparatus comprises a mechanism for computing a contribution from each vertex using the hash value. The apparatus comprises a mechanism for combining with the computer the contribution from each vertex into a single interpolated result.~~

~~————— The present invention pertains to a method for creating an appearance of texture in a computer image. The method comprises the steps of inputting a point  $\{x_d\}$  in  $D$ -dimensional geometric space  $RD$  described via  $D$   $M$ -bit quantities  $i_d$  and  $D$   $N$ -bit quantities  $u_d$ , where  $i_d$  are  $M$ -bit representations of greatest integers not  $> x_d$  and  $u_d$  are  $N$ -bit representations of remainders  $(x_d - i_d)$  where  $M$  and  $N$  are integers  $\geq 4$ , in a computer. Then there is the step of computing a pseudo-random hash value at each vertex of a unit cube  $C$~~

~~surrounding the point. Next there is the step of computing a contribution from each vertex using the hash-value. Then there is the step of combining with the computer the contribution from each vertex into a single interpolated result.~~